

Payment will be made under:

	<u>Pay Item</u>	<u>Pay Unit</u>
-	637.07 Sprinkling	cubic meter [1000
gallon]	637.08 Calcium Chloride	megagram [Ton]
	637.071 Dust Control	Lump Sum

## SECTION 638 - BRIDGE LIGHTING

Reserved

## SECTION 639 - ENGINEERING FACILITIES

639.01 Description This work shall consist of providing, erecting, lighting, equipping and maintaining buildings to be used by the Engineer as field offices or testing laboratories. Upon completion of the work, the buildings and equipment shall remain the property of the Contractor.

639.02 Materials Materials for buildings shall be of good quality customarily used in standard frame house or office trailer construction.

639.03 General The building of the type called for shall be provided before the start of work, and shall remain until work is completed and accepted, unless earlier removal is authorized. The location shall be approved by the Resident.

A fire extinguisher shall be provided in each building or office trailer for electrical and chemical fires and effective on all solvents used in the building.

Walls, roof, floor, windows, and doors shall be tightly constructed to the required area.

Furnishings shall be supplied as called for. Doors shall be equipped with locks and all keys shall be in the possession of the Engineer. Windows shall be equipped with

latches so they may be locked on the inside. Window screens and screen doors shall be supplied when necessary.

639.04 Field Offices Field Offices are designated Type A or Type B. Buildings, including trailers, may be provided if they substantially equal or exceed the following requirements. Air conditioning shall be provided in all field offices.

The walls, roof, and floor of the building shall be completely insulated with a minimum insulation value of R-15. Office trailers shall be either new or in very good used condition. The interior walls shall be covered with suitable wall paneling. The entire office trailer shall be for the exclusive use of the Engineer. The office trailer shall be winterized and completely enclosed at the bottom, if the trailer will be used in cold weather.

Testing facilities furnished under this section shall include all facilities for testing as described and shall be available for the exclusive use by the Resident for the duration of the project.

Other types of buildings and facilities may be furnished of equal or better quality.

A public work area will be provided in the field office that shall be designed and constructed so that individuals with disabilities can approach, enter, and exit this area.

At least one accessible route to the field office shall be provided from accessible parking. The accessible route shall comply with the Americans with Disabilities Act Accessibility Guidelines (ADAAG) and this specification.

The minimum clear width of an accessible route shall be 915 mm [36 in] except at doors. The least possible slope shall be used for an accessible route. An accessible route with a running slope greater than 1:20 shall be considered a ramp. Maximum ramp slope is 1:12. The maximum rise for any run of a ramp shall be 760 mm [30 in] and the minimum clear width shall be 915 mm [36 in]. Nowhere shall the cross slope of an accessible route exceed 1:50. Changes in level up to 6 mm [ $\frac{1}{4}$  in] may be vertical and without edge treatment. Changes in level between 6 mm [ $\frac{1}{4}$  in] and 13 mm [ $\frac{1}{2}$  in] shall be beveled with a slope no greater than 1:2. Ramp floor surfaces shall be stable, firm, and slip-resistant.

Ground floor surfaces along accessible routes and in accessible rooms and spaces including floors, walks, ramps, stairs, and curb ramps, shall be stable, firm, and slip-resistant.

The main door to the public work area shall have a minimum clear opening of 810 mm [32 in] with the door opened 90 degrees, measured between the face of door and the opposite stop. Minimum maneuvering clearances at doors shall be provided. The floor or ground area within the required clearances shall be level and clear.

The handle and other operating devices on accessible doors shall have a shape that is easy to grasp with one hand and does not require tight grasping. Lever-operated mechanisms, push type mechanisms, and U-shaped handles are acceptable designs. Hardware required for accessible door passage shall be mounted no higher than 1220 mm [48 in] above finished floor.

When parking space is designated, then all related requirements will conform to the following: One accessible parking space shall be located on the shortest accessible route of travel from adjacent parking to an accessible entrance.

Level landings shall be provided at bottom and top of each run. The landing shall be at least as wide as the ramp run leading to it with a minimum length of 1525 mm [60 in].

If a ramp run has a rise greater than 150 mm [6 in] or a horizontal projection greater than 1830 [72 in], then it shall have handrails on both sides. Handrails shall have the following features:

- 1) Handrails shall be provided along both sides of ramp segments. The inside handrail on switchback ramps shall always be continuous.
- 2) If handrails are not continuous, they shall extend at least 300 mm [12 in] beyond the top and bottom of the ramp segment and shall be parallel with the floor or ground surface.
- 3) The clear space between the handrail and the wall shall be 40 mm [1½ in].
- 4) Gripping surfaces shall be continuous.

- 5) Top of handrail gripping surfaces shall be mounted between 860 [34 in] and 965 mm [38 in] above ramp surfaces.
- 6) Ends of handrails shall be either rounded or returned smoothly to floor, wall, or post.
- 7) Handrails shall not rotate within their fittings.
- 8) The diameter or width of the gripping surfaces of a handrail shall be 32 mm to 40 mm [1¼ in to 1½ in], or the shape shall provide an equivalent gripping surface.

Firm and sturdy steps shall also be provided with 180 mm [7 in] maximum riser and 280 mm [11 in] minimum depth, and at least one handrail extending from the top of the steps to a minimum 305 mm [12 in] beyond the bottom of the steps.

The Contractor will make reasonable effort(s) to provide wheelchair accessible toilet facilities when "portable" facilities are provided.

The Contractor shall provide wheelchair accessible toilet facilities when flush type facilities, that is, those with running water, are provided; and the Contractor shall provide wheelchair accessible portable facilities, if used, when the contract duration exceeds two continuous construction seasons.

In addition to the facilities previously specified in this subsection, each field office shall meet the following minimum requirements:

<u>Description</u>	<u>Quantity</u>	
	Type A	Type B
Floor Area - m <sup>2</sup> (ft <sup>2</sup> ) (160)	29 (312)	15
Inside Wall Height - m (ft) 2.134 (7)	2.134 (7)	
Window Area - m <sup>2</sup> (ft <sup>2</sup> ) (35)	5.1 (55)	3.3
Drafting Table Surface Area - m <sup>2</sup> (ft <sup>2</sup> ) (15)	1.4 (15)	1.4

Drafting Stools - each	2	1
Office Desks - each	2	1
Ergonomic Swivel Chairs - each	3	2
Folding Chairs - each	3	2
Lighting Units - each	4	2
Electric Wall Outlets - each	6	3
Wall Closets - each	1	1
Plan Rack for minimum of 6 sets of plans	1	1
Toilet Facility	1	1
Wastebaskets - each	2	1

All windows shall be provided with shades or blinds.

The toilet facility shall be for the exclusive use of State personnel.

The Resident will have the option to reject any furniture or supplies provided to the field office based on general condition.

One hundred ten volt, 60 cycle, continuous electric service shall be supplied for lighting and 15 amp duplex wall outlets. Lighting shall consist of florescent light units with rapid start bulbs located over the work areas for a minimum of 538 lx [50 foot candles] overall.

Drafting surfaces shall be 1000 mm [40 in] above the floor and have shelves beneath. Shelves for plans and rolls shall also be furnished overhead. Drafting stools shall be approximately 700 mm [28 in] high.

Desks shall be single or double pedestal standard office type, and shall be in addition to “built-in” type desks in the office trailer.

Field offices shall be furnished with one four-drawer letter size metal filing cabinet.

Wall closets shall be 525 mm [21 in] wide, 375 mm [15 in] deep, and at least 1200 mm [4 ft] high.

Each office shall be furnished with a broom, dustpan, sweeping compound, trash bags, and with cleaning material for cleaning glass. If the field office is carpeted, then a

vacuum cleaner will be provided. The contractor will be responsible for disposing of trash from the field office.

The Contractor shall provide a fully functional desktop copier, capable of copying field books, for the Resident's use during the project. All maintenance and supplies, except paper, shall be the responsibility of the Contractor.

The Contractor shall provide a water cooler, with hot and cold dispenser, and shall be responsible for supplying bottled water compatible with the water cooler to maintain a constant potable water supply for the duration of the project. All maintenance and supplies shall be the responsibility of the Contractor.

The Contractor shall provide a 4 cubic-foot refrigerator in the field office for the duration of the project.

Each office shall be furnished with a 10-person general-purpose first aid kit. The first aid kit shall be periodically inspected and refilled as necessary.

639.05 Testing Facilities-Soils The building and facilities shall:

- a) Be the minimum size and quality as a Field Office, Type B, and placed in an approved location near the project.
- b) Have adequate heat and ventilation. The method of heating shall be such that a minimum temperature of 18°C [65°F] can be maintained at all times. Air conditioning shall be provided.
- c) Be equipped with a gravity or pressure water system with at least 380 L [100 gal] capacity. The tank shall be piped to a gooseneck faucet at an approved sink within the laboratory. The sink shall have approved outside drainage.
- d) Have a bench, 1500 mm long by 600 mm wide, 900 mm [5 ft long by 2 ft wide, 3 ft] above the floor, suitable for supporting a sieve shaker and electric hot plate.
- e) Have a chair, and desk or writing table, 1200 x 750 mm [4 ft by 2.5 ft], 750 mm [30 in] above the floor with 2-drawer (minimum) filing cabinet.

f) Have three electric wall outlets; one 15 amp. outlet to be located in the desk area, and two 20 amp. outlets to be located 150 mm (6 in) above the workbench described in d) above.

g) Have 1 stool, 700 mm [28 in] high.

h) Be equipped with the following test equipment and supplies. All equipment and supplies shall be in conformance with revisions of AASHTO T11, AASHTO T27, and AASHTO T191. The Maine Department of Transportation Independent Assurance Sampling and Testing program will be conducted to monitor the precision and accuracy of acceptance tests. All testing equipment shall be of commercial quality and acceptable to the Resident and all equipment determined to be substandard by this testing program shall be replaced. The Contractor shall install and maintain the equipment in good condition at all times.

1. Coarse series shaker: Mechanical shaker having trays with a minimum of 0.129 m<sup>2</sup> [200 in<sup>2</sup>] of surface area or; a manually operated shaker box manufactured to close conformity of the plans available at the MDOT Testing Office. Woven wire sieves conforming to the requirements of AASHTO M92. Sieve sizes 75 mm [3 in], 25 mm [1 in], 19 mm [ $\frac{3}{4}$  in], 12.5 mm [ $\frac{1}{2}$  in] shall be provided for each type of shaker used.

2. Motorized Sieve Shaker with timer, either a combination rocking and tapping action, or rheostat controlled vibrating type. The shaker shall be capable of holding a nest of six 200 mm [8 in] full height sieves and pan.

3. Set of U.S. Standard Brass or Stainless Steel 200 mm [8 in] diameter woven wire sieves conforming to the requirements of AASHTO M92 and the sieves required shall include the following sizes: 25 mm [1 in]; two 19 mm [ $\frac{3}{4}$  in]; 12.5 mm [ $\frac{1}{2}$  in]; 9.5 mm [ $\frac{1}{2}$  in]; 6.3 mm [ $\frac{1}{4}$  in]; 4.75 mm [No. 4]; 2.36 mm [No. 8]; 2.0 mm [No. 10]; two 1.18 mm [No. 16]; 850  $\mu$ m [No. 20]; 600  $\mu$ m [No. 30]; 425  $\mu$ m [No. 40]; 300  $\mu$ m [No. 50]; 150  $\mu$ m [No. 100]; two 75  $\mu$ m [No. 200]; pan and cover

4. Balance: Electric digital 2,000 gram (4.5 lb) minimum capacity, sensitive to 0.1 gram (.0035 oz) and conforming to AASHTO M231 Class G-2.

5. Balance: at least 34 kg [75 pounds] capacity sensitive to 0.02 kg [0.05 lb]

conforming to AASHTO M231 Class G100.

6. 2 hot plates, each with two burners 700 to 800 Watt, 3 prong grounded plug, with adjustable control for each burner.
7. 6 Drying Pans: 250 x 375 x 50 mm [10x15x2 in] deep heavy gauge aluminum.
8. Heat Resistant Gloves: Long cuff leather welding gloves.
9. Two D-Handle square end shovels - 240 mm [9½ in] wide.
10. One long handle spade.
11. Two 1.5 x 1.5 m [5x5 ft] imperious vinyl coated nylon canvas for quartering samples.
12. One sample splitter - a stainless steel splitter, conforming to AASHTO T248 paragraph 6.1, with curled safety edges.
13. Miscellaneous small tool and equipment: one 0.45 kg [16 oz] steel hammer; one screwdriver 300 mm [12 in] long with a 10 mm [• in] shaft; two 38 mm [1½ in] paint brushes; three 375 mm [15 in] heavy gauge stainless steel spoons; one brass bristle sieve brush; one 2 m [6 ft] folding rule; one 500 ml. squeeze bottle; one wash bottle (a 3.785 L [1 gal] wide mouth plastic bottle or a 150 x 300 mm [6 in x 12 in] plastic concrete cylinder mold); one floor broom.
14. A 10 person general-purpose first aid kit. The first aid kit shall be periodically inspected and refilled as necessary.

The balances described above in sections h)-4 and h)-5 shall be calibrated by an independent calibration service at a minimum frequency of once per year. A current certification sticker shall be displayed on the balance, and calibration records shall be maintained at the testing facility for Department inspection.

639.08 Heat Heat shall be supplied by the Contractor to maintain an acceptable room temperature during occupancy.



639.09 Telephone The Contractor shall provide three telephone lines and two telephones, touch-tone models in areas where touch-tone service is available, in all field offices for the exclusive use of the State personnel. At least one phone shall be cordless. These telephones shall be on a private line, if available and shall be listed under "State of Maine, Maine Department of Transportation". One telephone line shall have "Call Waiting" installed, if available. Each line shall have jacks installed at each end of the field office. The Contractor shall be responsible for the installation charges and all reinstallation charges following suspended periods. Monthly service and maintenance charges shall be billed by the telephone company directly to the Contractor. During seasonal suspension periods, the telephone company shall be notified to discontinue or suspend the services and the Contractor shall assume all charges. Upon resumption of work, the telephone service shall be reinstated.

The Contractor shall also provide a telephone-answering device in all field offices where a telephone is provided capable of answering calls and recording incoming messages. The Contractor shall be responsible for all maintenance costs for the answering device.

639.10 Method of Measurement Field office and testing facilities will be measured by the unit or lump sum for each building provided, equipped and maintained satisfactorily.

639.11 Basis of Payment The accepted quantity of field office or testing facilities will be paid for at the contract unit price each or lump sum which payment shall be full compensation for furnishing, erecting, equipping, maintaining, furnishing electricity, heating, installing and maintaining toilet facilities and if necessary removing the buildings or office trailers. Payment for testing facilities shall include furnishing all buildings and facilities as required by these specifications for the testing of materials by the State.

Payment for these items will be made in 3 parts; the first payment of  $\frac{1}{2}$  to be made after the Contractor has supplied the building or office trailer and it has been approved. The remaining payments shall be made at intervals as follows:

A second payment of  $\frac{1}{4}$  shall be made when one-half of the anticipated work has been completed.

The final payment of the remaining  $\frac{1}{4}$  shall be made upon completion of the work.

Testing facilities, bituminous liquids and Portland cement, will not be paid for directly but all costs will be considered incidental to the various contract items.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
639.18 Field Office, Type A	Each
639.19 Field Office, Type B	Each
639.21 Testing Facilities - Soils	Lump Sum

## SECTION 640 - VACANT

## SECTION 641 - REST AREA FACILITIES

Reserved

## SECTION 642 - STEPS

642.01 Description This work shall consist of the construction of wooden steps, precast concrete steps or cast-in-place concrete steps in accordance with these specifications and in reasonably close conformity with dimensions and designs shown on the plans.

642.02 Materials Materials for the steps shall meet the requirements as specified in the following Sections of Division 700 - Materials:

Exterior Ready Mixed Paint	708.01
Timber Preservative	708.05
Precast Concrete Units	712.06

Wood shall be well-seasoned spruce or pine, Number 1 dimension lumber. Nails and